

CLAIM AMENDMENTS

1-31. (canceled)

32. (currently amended): A method of detecting post-transcriptional gene silencing (PTGS) of a target gene in an organism which method comprises the steps of:

analyzing a nucleic acid extract prepared from said organism to determine the presence or absence of short RNA molecules (SRMs) which are 20-30 nucleotides in length in said extract, characterizing any SRMs which are present in said extract to determine sequence identity or similarity with ~~any~~ said target gene,

wherein the presence of any SRMs having sequence identity or similarity with said target gene indicates silencing of the target gene in the organism.

33. (withdrawn): The method of claim 32, wherein the organism is a plant.

34. (withdrawn): The method of claim 32, wherein the organism is a nematode.

35. (previously presented): The method of claim 32, wherein the organism is a mammal.

36. (previously presented): The method of claim 32 wherein the SRMs are short anti-sense RNA molecules (SARMs).

37. (previously presented): The method of claim 32 wherein the SRMs are short sense RNA molecules (SSRMs).

38. (canceled)

39. (previously presented): The method of claim 32, wherein the silencing of said target gene in the organism is associated with pathogen derived resistance.

40. (previously presented): The method of claim 32, wherein the silencing of said target gene in the organism is associated with modification of a specific trait by co-suppression of the target gene.

41. (previously presented): The method of claim 32, wherein the step of characterizing any SRMs present in the extract to determine sequence identity or similarity with a target gene is performed by:

preparing a library of genes from said organism, and
identifying those genes in said library which share sequence identity or similarity, with any SRMs which are present in the extract as being genes which are silenced in the organism.

42-46. (canceled)

47. (previously presented): The method of claim 32 wherein the target gene is an animal gene selected from the group consisting of a gene involved in apoptosis; a gene involved in cell-cycle regulation; and a gene involved in a neurological process.

48. (canceled)

49. (previously presented): The method of claim 32, wherein said short RNA molecules are 25 nucleotides in length.

50-65. (canceled)